

Public Workshop to Discuss Reducing Emissions from
Offroad Mobile Cargo Handling Equipment at Ports and
Intermodal Rail Yards

Proposed Regulatory Concepts

May 18, 2005

Sacramento, California



California Environmental Protection Agency



Air Resources Board

Overview

- ◆ Background
- ◆ Applicability
- ◆ Updated Regulatory Concepts
- ◆ Next Steps



Background



Goals

- ◆ Develop statewide control measure to address emissions from mobile diesel-fueled cargo handling equipment
 - Achieve maximum emission reductions (both near term and long term) for PM and NO_x
- ◆ Consideration by the Board in fourth quarter 2005

Applicability



Ports



Intermodal Rail Yards



Examples of Cargo Handling Equipment Types

- ♦ yard trucks
- ♦ top handlers
- ♦ side handlers
- ♦ reach stackers
- ♦ rubber-tired gantry cranes
- ♦ forklifts
- ♦ euclids
- ♦ skid steer loaders
- ♦ rubber-tired loaders
- ♦ sweepers
- ♦ dozers
- ♦ excavators
- ♦ mobile cranes
- ♦ railcar movers

Proposed Regulatory Concepts



Overview: Modifications to the Preliminary Concepts

- ◆ Added definitions for equipment types
- ◆ Removed idling provision
- ◆ Defined requirements for newly purchased equipment
- ◆ Revised requirements for yard trucks and all other equipment
- ◆ Added record keeping and reporting requirements
- ◆ Added prohibition clause for selling, renting, and leasing

Proposed Concepts for Newly Purchased or Leased Equipment

- ♦ DMV Registered (onroad) equipment
 - meet current year onroad standard
- ♦ Non-registered (offroad) equipment
 1. meet current year onroad standard; or
 2. if not feasible, meet Tier 4 offroad standard for model year and rated hp; or
 3. if not feasible, meet Tier 2 or 3 offroad standard for model year and rated hp with highest level available VDECS

Process/criteria for determining feasibility will be developed

In-Use Yard Trucks

Summary of Changes to Proposed Concepts

- ♦ Accelerated turnover 2 to 3 years
 - based on 10-year useful life
 - more time for multiple vehicles, installed controls, and onroad engines
- ♦ Diesel PM standard
 - 2007 or later onroad, Tier 4 offroad, or 0.01 g/bhp-hr
- ♦ Oldest engines (Tiers 0 - 1) replace first

In-Use Yard Trucks Compliance Table: pre-1996 to 2002 Offroad Engines

Yard Truck with Offroad Engine Installed

Model Year	Diesel PM Standard	Compliance Date*			
		Fleets with 1 to 3 yard trucks	Fleets with 4 or more yard trucks		
			25%	50%	100%
Pre-1996 to 2002: No VDECS installed by December 31, 2006	Engine certified to 2007 or later onroad standards or Tier 4 offroad standards; or 0.01 g/bhp-hr	2007	-	2007	2008
Pre-1996 to 2002: Any Level VDECS installed by December 31, 2006	Engine certified to 2007 or later onroad standards or Tier 4 offroad standards; or 0.01 g/bhp-hr	2008	-	2008	2009

In-Use Yard Trucks Compliance Table: 2003 to 2006 Offroad Engines

Yard Truck with Offroad Engine Installed

Model Year	Diesel PM Standard	Fleets with 1 to 3 yard trucks	Compliance Date*		
			Fleets with 4 or more yard trucks		
			25%	50%	100%
2003 to 2006: No VDECS installed by December 31, 2006	Engine certified to 2007 or later onroad standards or Tier 4 offroad standards; or 0.01 g/bhp-hr	model year + 7 years	model year + 7 years	model year + 8 years	model year + 9 years
2003 to 2006: Level 1 VDECS installed by December 31, 2006	Engine certified to 2007 or later onroad standards or Tier 4 offroad standards; or 0.01 g/bhp-hr	model year + 8 years	model year + 8 years	model year + 9 years	model year + 10 years
2003 to 2006: Level 2 VDECS installed by December 31, 2006	Engine certified to 2007 or later onroad standards or Tier 4 offroad standards; or 0.01 g/bhp-hr	model year + 9 years	model year + 9 years	model year + 10 years	model year + 11 years
2003 to 2006: Level 3 VDECS installed by December 31, 2006	None				

In-Use Yard Trucks

Compliance Table:

2003 to 2006 Onroad Engines

Yard Truck with Onroad Engine Installed

Model Year	Diesel PM Standard	Compliance Date*			
		Fleets with 1 to 3 yard trucks	Fleets with 4 or more yard trucks		
			25%	50%	100%
1996 to 2006: No VDECS installed by December 31, 2006	Engine certified to 2007 or later onroad standards or Tier 4 offroad standards; or 0.01 g/bhp-hr	model year + 8 years	Model year + 8 years	Model year + 9 years	model year + 10 years
1996 to 2006: Any Level VDECS installed by December 31, 2006	Engine certified to 2007 or later onroad standards or Tier 4 offroad standards; or 0.01 g/bhp-hr	model year + 9 years	model year + 9 years	model year + 10 years	model year + 11 years

In-Use Yard Trucks

Additional Standards

- ◆ Offroad engines
 - meet HC, NOx, NMHC+NOx, and CO certified offroad standards for model year and horsepower
- ◆ Onroad engines
 - meet HC, NOx, NMHC, NMHC+NOx, and CO certified onroad standards for model year and horsepower

In-Use Equipment Excluding Yard Trucks

Summary of Changes to Proposed Concepts

♦ **4 BACT options**

1. 0.01 g/bhp-hr PM onroad or Tier 4 offroad
2. 0.1 g/bhp-hr PM onroad or Tier 2/3 offroad + highest level VDECS
3. alternative fuel or heavy-duty pilot ignition engine
4. highest level VDECS

If option 2 or 4 is chosen:

- meet Tier 4 offroad by Dec. 31, 2015

♦ **Compliance Extensions Added**

In-Use Equipment Excluding Yard Trucks

BACT Compliance Schedule

Group	Engine Model Years	Compliance Date*				
		Fleets with 3 or Fewer	Fleets with 4 or More			
			25%	50%	75%	100%
1	pre-1988	2007	2007	2008	2009	2010
2	1988-1995	2008	2008	2009	2010	2011
3	1996-2002	2009	2009	2010	2011	2012
4	2003-2006	2010	2010	2011	2012	2013

* Compliance date refers to December 31st of the year indicated.

Compliance Extensions

- ♦ No VDECS available
 - annual extension (limited to two one-year extensions)
- ♦ Early retirement
 - if retired within one year of compliance date
- ♦ Use of experimental Diesel PM Controls
 - up to 2 year extension

Record Keeping Requirements

- ♦ Annual Record Keeping
 - keep on hand (only have to submit with compliance plan and demonstration of compliance below)
 - owner/operator information
 - equipment/engine information
 - demonstration of compliance

Reporting Requirements

- ◆ Compliance Plan
 - submit by January 31, 2007
 - not binding; want to ensure owner/operator is aware of compliance requirements and has developed plan
- ◆ Demonstration of Compliance
 - submit by earliest applicable compliance date
 - identify control strategy implemented
- ◆ Annual Reporting
 - submit annually by January 31st beginning in 2007
 - include company and contact information and location of equipment

Prohibitions

- ◆ Can't knowingly sell, rent, or lease new or used cargo handling equipment that does not meet the performance requirements



Next Steps



- ◆ Yard truck testing
- ◆ Emissions inventory
- ◆ Impact Analysis
- ◆ Stakeholder meetings
- ◆ Workgroup meetings
- ◆ Next public workshop
late summer 2005

Contacts

- | | |
|--|---|
| <ul style="list-style-type: none">◆ Lisa Williams (Staff)
e-mail: lwilliam@arb.ca.gov
phone: 916.327.1498◆ John Lee (Staff)
e-mail: jlee@arb.ca.gov
phone: 916.327.5975◆ Bonnie Soriano (Staff)
e-mail: bsoriano@arb.ca.gov
phone: 916.327.6888 | <ul style="list-style-type: none">◆ Peggy Taricco, Manager
Technical Analysis Section
e-mail: ptaricco@arb.ca.gov
phone: 916.327.7213◆ Dan Donohue, Chief
Emissions Assessment
Branch
e-mail: ddonoho@arb.ca.gov
phone: 916.322.6023 |
|--|---|

Web Site: <http://www.arb.ca.gov/cargo>